

NOTES ON HIPPOCRATEACEAE IN SOUTHEASTERN ASIA

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With three text-figures

IN ATTEMPTING to identify a specimen of Hippocrateaceae recently collected in Hongkong, it became necessary to look into the typification of *Hippocratea obtusifolia* Roxb., a name which has in the past accommodated many of the capsular-fruited large-disked specimens of the family from southeastern Asia. In the course of this study the available material from India, Burma, Indo-China, and China was examined, and it became apparent that two undescribed Chinese species had been passing as *H. obtusifolia*. Descriptions of these and notes on several other species follow, new combinations in the genera *Loeseneriella* and *Pristimera* being proposed for some of them. Specimens are cited from the following herbaria: Arnold Arboretum (A), Gray Herbarium (GH), New York Botanical Garden (NY).

Loeseneriella A. C. Sm.

Loeseneriella obtusifolia (Roxb.) A. C. Sm. in Am. Jour. Bot. 28: 440. 1941.

Hippocratea obtusifolia Roxb. Fl. Ind. 1: 170. 1820.

Hippocratea tortuosa Wall. Cat. no. 4216, nomen. 1830.

Hippocratea obtusifolia is based upon a plant collected on the Coromandel coast of India. The species has been accredited with a very wide distribution and has become, in herbarium usage, a collective concept. Careful examination of the pertinent early literature and the available historical specimens is essential for a proper understanding of Roxburgh's species. In this connection, several available specimens fortunately permit a clear understanding of it.

A specimen labeled "*Hippocratea obtusifolia* Roxb. Hort. bot. Calcutt." (GH), in flower, agrees very well with the original description. It is apparent that Roxburgh had this species in cultivation at Calcutta, from his comment: "Flowering time in the Botanic Garden, March and April; the seeds take one year to ripen." There appears to be little doubt that the specimen at hand was collected from the original plant and that it may be taken essentially as an isotype.

A second specimen, labeled "*Hippocratea obtusifolia* R. in fruit. BGC. 6 Augt. 1889" (GH), is also apparently taken from the same plant in the Calcutta Botanic Garden.

A third important collection is *Wight 465* (GH, NY), in flower, almost certainly a duplicate of the specimen which served as the basis of Wight's much-cited plate of *Hippocratea obtusifolia* (Ic. Pl. Ind. Or. 3: pl. 963. 1845). According to Wight's text (op. cit. 3(3): 5), the specimens from which the drawing was made came from "the eastern slopes of the Neilgher-

ries by the roadside from Kottergherry to Matypolium . . ." The Wight specimen permits one to state with considerable assurance that he and Roxburgh had the same concept in mind for *Hippocratea obtusifolia*.

A fragmentary specimen of *Wallich 4216* (GH), which number is the source of the name *Hippocratea tortuosa*, is essentially identical with the other specimens mentioned above, and thus one is able to place this binomial of Wallich's with confidence.

The collections mentioned above, with two others, are the only specimens which at present I can confidently refer to *Loeseneriella obtusifolia*. Whether or not this species has a distribution outside of peninsular India needs reconsideration, in spite of the numerous floras and lists which have implied for it a very extensive range. Following are citations upon which my concept of the species is based:

INDIA: Bombay: Konkan ("Concan") District, *Stocks* (GH); Madras: Nilgiris, *Wight 465* (GH, NY); Aiyur, Salem District, *E. K. Kristman 41* (GH); cultivated: *Hort. Calcutta Botanic Garden*, without date, in flower (GH), Aug. 6, 1889, in fruit (GH) (specimens probably from type plant of *Hippocratea obtusifolia*); without data: *Wallich 4216* (GH) (source of the name *Hippocratea tortuosa*).

The advisability of separating the Old World species of this alliance from *Hippocratea* L. has recently been discussed by the writer (in *Am. Jour. Bot.* 28: 439. 1941).

Loeseneriella concinna sp. nov. FIG. 1.

Hippocratea obtusifolia sensu Benth. *Fl. Hongk.* 62. 1861; Dunn & Tutcher in *Kew Bull. Add. Ser.* 10: 62. 1912; non Roxb.

Frutex volubilis, ramulis gracilibus glabris primo fusco-purpureis demum saepe cinereis interdum copiose scabrido-lenticellatis; foliis oppositis glabris, petiolis inconspicuis supra canaliculatis 2-4 mm. longis, laminis chartaceis viridibus vel fusco-viridibus saepe nitentibus oblongo-ellipticis, (3-) 4-7 cm. longis, (1.2-) 1.5-3.5 cm. latis, basi obtusis vel subrotundatis et in petiolum decurrentibus, apice obtusis vel obtuse cuspidatis, margine crenato-serrulatis (dentibus 2 vel 3 per centimetrum saepe obscure callosoperculatis), costa utrinque valde elevata, nervis secundariis utrinsecus 4-6 patentibus brevibus anastomosantibus et rete venularum copioso intricato utrinque prominulis; inflorescentiis cymoso-paniculatis apicem ramulorum versus axillaribus 2-3.5 cm. longis et latis paucifloris, ramulis pedicellisque gracilibus leviter puberulis demum glabrescentibus, pedunculo communi 1-1.5 cm. longo, bracteis bracteolisque deltoideis acutis 0.6-1 mm. longis margine glanduloso-serrulatis; floribus glabris ultimis binis vel ternatis, pedicellis sub anthesi in dichotomiis 10-15 mm. longis alteris 5-10 mm. longis; sepalis papyraceis deltoideis subacutis, circiter 0.7 mm. longis, 1-1.5 mm. latis, margine basim versus obscure ciliolatis; petalis tenuiter carnosus oblongo-lanceolatis, 4-5 mm. longis, 1.7-2.5 mm. latis, apice callosomucronulatis, margine apicem versus obscure ciliolatis; disco carnosus annulari-pulvinato, basi 2-2.5 mm. diametro et obscure pentagono, 1-1.5 mm. alto, medium versus obscure constricto, apice angustiore et leviter crenulato; filamentis sub anthesi circiter 1.3 mm. longis et basi 0.6-0.8 mm. latis, superne angustatis, antheris 0.4-0.5 × 0.6-0.7 mm.; ovario in disco immerso trigono, ovulis in quoque loculo 4 oblique adscendentibus, stylo conico-subulato 0.8-1 mm. longo truncato; capsulis divergentibus obovato-

ellipticis, maturitate 3.5–6 cm. longis et 1.5–3.5 cm. latis, basi obtusis, apice emarginatis, pericarpio venis longitudinalibus anastomosantibus prominulis copiose striato; seminibus plerumque 4, ala basali submembranacea vel papyracea elliptica maturitate ad 3×2 cm. basi obtusa, parte embryonifera falcato-ellipsoidea ad 15 mm. longa.

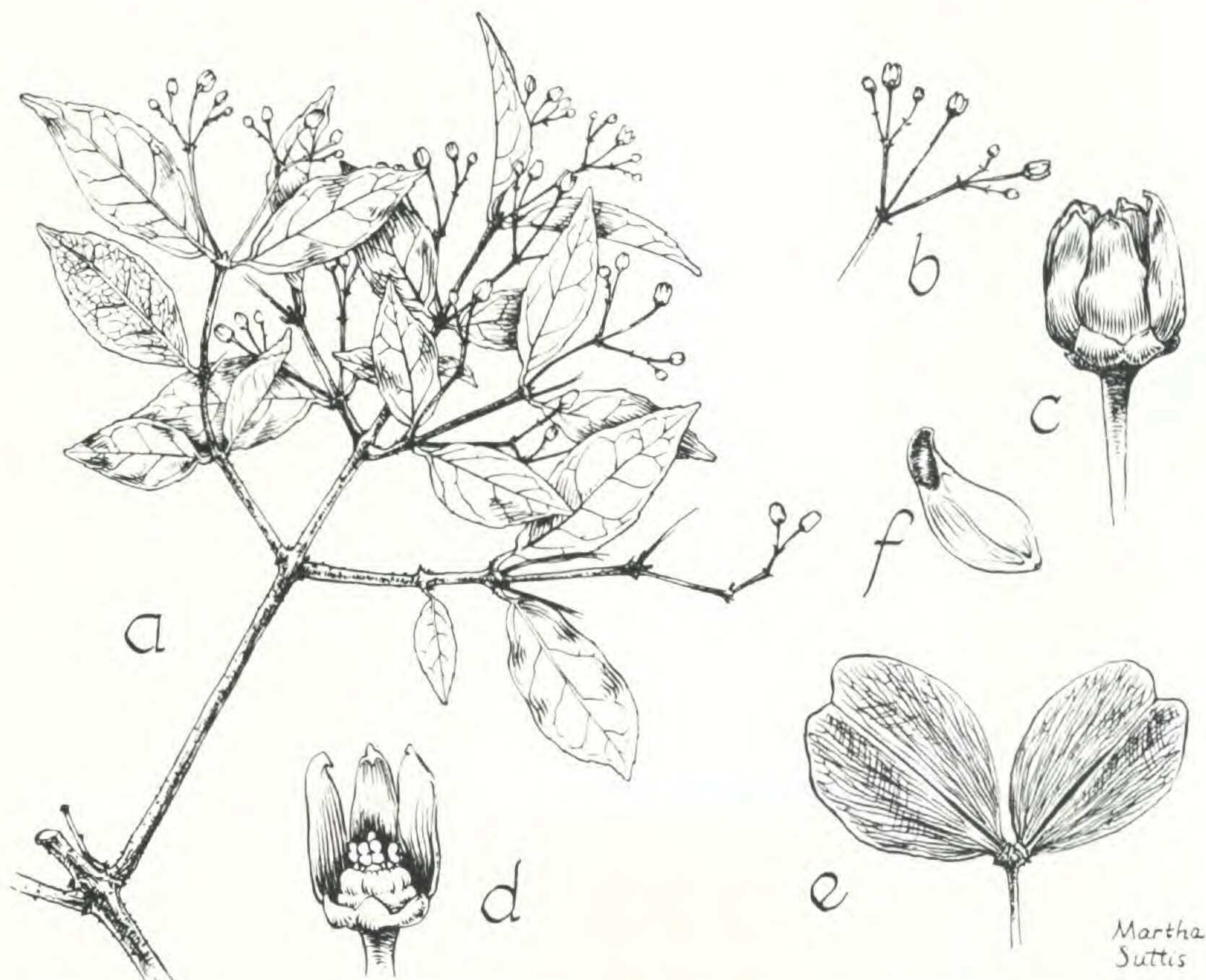


FIG. 1. *Loeseneriella concinna*; a. flowering branchlet, $\times \frac{1}{2}$; b. detail of inflorescence, $\times \frac{1}{3}$; c. flower slightly before full anthesis, $\times 3$; d. flower with two petals removed, $\times 3$; e. fruit with one capsule aborted, $\times \frac{1}{2}$; f. seed, $\times \frac{1}{2}$. Figs. a-d drawn from the type, e from Tsang 21743, f from Tsang 16674.

CHINA: Hongkong: Ford (A); Lantao Island, Shantao, Tungchung and vicinity, Y. W. Taam 2105 (A, TYPE), June 4, 1941 (fairly common on sandy stony slope among scattered shrubs; flowers yellow); Lantao Island, Taai Ue Shan, Lingnan Univ. 16674 (Tsang) (A, NY) (in a ravine; fruit yellow; native name: *Ch'ing Heung Tsai Shue*); Kwangtung: Tung Koo Shan, Tapu District, W. T. Tsang 21743 (A, NY) (fairly common on dry steep slope, in silty sandy rocky soil, among scattered shrubs [fruit]); Kwangsi: Shap Man Taai Shan, near Iu Shan village, Shang-sze District, Kwangtung border, W. T. Tsang 22444 (A) (fairly common in thickets in silty clayey rocky soil; flowers yellow).

This species of southern China, which has been passing in herbaria as *Hippocratea obtusifolia* Roxb., may be readily distinguished from that Indian species, discussed above, as follows:

Petioles 4–10 mm. long; leaf-blades elliptic, often broadly so, $4-11 \times 2.5-7$ cm.; inflorescence ample, often as long as the leaves, many-flowered; pedicels 1.5–3 mm. long at anthesis, with the sepals brown-puberulent; style 1.2–1.6 mm. long; ovules 6 per locule.....*L. obtusifolia*.

Petioles 2–4 mm. long; leaf-blades oblong-elliptic, usually $4-7 \times 1.5-3.5$ cm.; inflorescence compact, shorter than the leaves, few-flowered; pedicels 5–15 mm. long at anthesis, with the sepals essentially glabrous; style 0.8–1 mm. long; ovules 4 per locule.....*L. concinna*.

Loeseneriella Merrilliana sp. nov. FIG. 2.

Hippocratea obtusifolia sensu Merr. in Lingnan Sci. Jour. 6: 328. 1928 [1930]; non Roxb.

Frutex volubilis, ramulis divaricatis glabris fusco-cinereis saepe copiose scabrido-lenticellatis; foliis oppositis glabris, petiolis robustis canaliculatis 5–8 mm. longis, laminis chartaceo-coriaceis in sicco fusco-viridibus subnitentibus oblongo-ellipticis, (5–) 6–10.5 cm. longis, (2–) 2.5–5.5 cm. latis, basi obtusis vel anguste rotundatis et in petiolum decurrentibus, apice



FIG. 2. *Loeseneriella Merrilliana*; a. flowering branchlet, $\times \frac{1}{2}$; b. flower with two petals removed, $\times 3$; c. flower, $\times 3$; d. fruit with one persistent capsule, $\times \frac{1}{2}$; e. seed, $\times \frac{1}{2}$. Figs. a-c drawn from the type, d and e from How 73743.

in acuminem obtusum 5–10 mm. longum abrupte cuspidatis, margine inconspicue crenato-serrulatis (dentibus circiter 2 per centimetrum obscure nigro-callosis), costa utrinque subprominente, nervis secundariis utrinsecus 4–6 adscendentibus utrinque paullo elevatis, rete venularum intricato utrinque priminulo vel supra subimmerso; inflorescentiis cymoso-paniculatis apicem ramulorum versus axillaribus 2.5–6 cm. longis saepe multifloris, ramulis pedicellisque dense sed minute farinoso-puberulis, pedunculo communi plerumque 1–1.5 cm. longo, bracteis bracteolisque deltoideis acutis 1–1.5 mm. longis subintegris; floribus ultimis binis vel ternatis, pedicellis gracilibus sub anthesi in dichotomiis 3–8 mm. longis alteris circiter 2 mm.

longis; sepalis ovato-deltaideis, 1–1.2 mm. longis, 1.5–1.8 mm. latis, apice obtusis, margine ciliolatis; petalis tenuiter carnosis oblongo-lanceolatis, 4–5 mm. longis, 1.7–2.5 mm. latis, apice dorso mucronulato-calcaratis, utrinque obscure farinoso-puberulis; disco carnosio annulari-pulvinato, basi 2–3 mm. diametro et obscure pentagono, 1–1.5 mm. alto, glabro, medium versus obscure constricto; filamentis ligulato-deltaideis 1–1.7 mm. longis, basi 0.8–1.5 mm. latis, superne angustatis, antheris 0.4–0.5 × 0.6–0.8 mm.; ovario in disco semi-immerso trigono, ovulis in quoque loculo 8, stylo conico-subulato 1–1.5 mm. longo truncato; capsulis immaturis obovato-ellipticis vel anguste ellipticis, ad 6 cm. longis et 3.2 cm. latis, basi obtusis et minute stipitatis, apice rotundatis vel emarginatis, pericarpio venis inconspicue striato, seminibus abortu paucis, ala basali membranacea late elliptica.

CHINA: Hainan: Sin Woh, Taam Chau District, *W. T. Tsang* 381 [Lingnan Univ. 17130] (A, TYPE; NY), May 19, 1928 (growing on the plain of a stream; flowers white, fragrant); Po-ting, alt. 350–550 m., *F. C. How* 72209 (A), 73743 (A) (twining plants in forested ravines; flowers [72209] pale green; fruits [73743] lustrous green); Yeung Lam Shan, near Yeung Lam village, Yai Hsien, *S. K. Lau* 6337 (A) (rare woody climber on dry steep slope on sandy soil in forest; flowers white); Yaichow, *H. Y. Liang* 62274 (NY) (scandent, in forested ravine; immature fruits green).

This new species from Hainan differs from the plant of Hongkong, Kwangtung, and Kwangsi above described as *L. concinna* in several obvious characters, namely the longer petioles, the more coriaceous and larger leaf-blades with a more obvious acumen, the usually more ample inflorescence with shorter pedicels and larger sepals, the farinose-puberulent character of its inflorescence-branches and petals, and in having 8 rather than 4 ovules per locule. From the Indian *L. obtusifolia* (Roxb.) A. C. Sm. the new species differs in the proportionately narrower leaf-blades, which are more coriaceous in texture and have a more obvious acumen, in the longer pedicels and slightly larger petals, and in having 8 rather than 6 ovules per locule.

A closer relative of the new species is apparently the Indo-Chinese *Loeseneriella dinhensis* (Pierre) comb. nov. (*Hippocratea dinhensis* Pierre, Fl. For. Cochinch. 4: pl. 301A. 1893). The Hainan plant differs from this, however, in its fewer secondary nerves, its more ample inflorescence, and its less highly elevated disk. It should be noted that the Indo-Chinese specimen *Pételot* 2119 (or 2219) cited by Merrill (in Jour. Arnold Arb. 21: 374. 1940) as *Hippocratea obtusifolia* Roxb. is very close to the new species and possibly identical with it. However, *Pételot* 2119 has the leaf-blades proportionately a little broader than our species, the pedicels shorter, and the ovules only 6 per locule. The *Pételot* plant is somewhat more suggestive of the true *L. obtusifolia* than the other specimens here discussed, but I doubt if it can be referred to the Indian species.

Hippocratea obtusifolia and *H. dinhensis* are placed by Loesener (in Nat. Pfl. ed. 2. 20b: 213. 1942) in *Hippocratea* subgen. *Euhippocratea* sect. *Barbatae*, the type-including section of *Hippocratea*, which in the writer's opinion (see Brittonia 3: 356–367. 1940) is a monotypic American genus.

Loeseneriella yunnanensis (Hu) comb. nov.

Hippocratea yunnanensis Hu in Bull. Fan Mem. Inst. Biol. 10: 152. 1940.

CHINA: Yünnan: Pu-Erh Hsien, Po-Pien-Kiang, alt. 1100 m., C. W. Wang 81219 (A, TYPE COLL.) (on open dry slope along river-bank; flowers greenish); Chuyüan, A. Henry 10865 (A,NY) (large climber; flowers green); Shih-Ling, alt. 1200 m., A. Henry 13274 (A,NY) (climbing shrub).

This is another species of the general alliance of *L. obtusifolia* (Roxb.) A. C. Sm., to which it is very similar in foliage, differing perhaps in having slightly shorter petioles and thicker leaf-blades. The flowers of *L. yunnanensis* are noticeably larger (sepals about 1.5×2 mm.; petals $5-8 \times 2.5-4$ mm.) than those of *L. obtusifolia* (sepals $0.7-0.8 \times 0.6-1.2$ mm.; petals $3.5-4.5 \times 1.5-2$ mm.). The disk is less highly elevated, being only 1-1.5 mm. high but widening to a base 3.5-4 mm. across; the disk of the Indian species is 1.7-2.3 mm. in diameter but proportionately higher. The filaments of the Yünnan plant are longer (2-2.5 mm. rather than 1-1.5 mm.), and the ovules are 8-10 per locule rather than 6. The available fruits of the two species show no consequential differences. Hu compared his new species with *Hippocratea puberula* Craib, but that species has much larger and longer-petioled leaves and smaller flowers.

Loeseneriella Arnottiana (Wight) comb. nov.

Hippocratea Arnottiana Wight, Ill. Ind. Bot. 1: 133. pl. 46, 47A. [1839]; Lawson in Hook. f. Fl. Brit. Ind. 1: 624. 1875.

INDIA: Madras: Wight 463 (GH, NY), 2445 (NY) (probably parts of TYPE COLL.); Kodaikanal Region, Palni Hills, Madura District, Anglade (A).

The Wight specimens cited above agree well with the original description and illustrations and are very probably a part of the type collection, cited without number; nos. 463 and 2445 are so similar that it seems likely that they are parts of a single original collection, subsequently re-numbered. The original locality is mentioned as "Malabar" by Wight, and as Quilon [Travancore State, Madras] by Lawson. The Anglade collection, from the same part of India, agrees precisely with Wight 463 and 2445. The species is very distinct in its large flowers (about 8 mm. in diameter at anthesis), spreading spatulate clawed petals, and papillose disk; the ovules are 8 or 10 per locule.

Loesener (in Nat. Pfl. ed. 2. 20b: 214. 1942) places *Hippocratea Arnottiana* in *Hippocratea* subgen. *Euhippocratea* sect. *Scutellatae*, a synonym of *Prionostemma* Miers, a very different American genus in the writer's understanding (see Brittonia 3: 391-396. 1940).

Loeseneriella serrata (Griffith) comb. nov.

Hippocratea serrata Griffith, Not. Pl. As. 4: 473. 1854, Ic. Pl. As. 4: pl. 582. 1854.

Griffith's species is difficult to interpret, due to the inadequacy of the original description and plate, but the latter is sufficiently clear to suggest with reasonable certainty that a species of *Loeseneriella* is represented, characterized by narrowly oblong-elliptic serrate leaf-blades and fairly short inflorescences. The original locality is given as: "Journey from Assam to Ava. Tsakan Delvi," probably in central Burma.

A specimen which agrees well with Griffith's plate is *Helfer 905* (GH), from "Tenasserim and Andamans." The leaves of this specimen are essen-

tially identical with those of the plate and agree with the description as to "costa venisque lutescentibus, subtus pallidioribus, . . ." The flowers of the Helfer specimen have the pedicels and sepals glandular-puberulent, the petals lanceolate-oblong, 3.5–4 mm. long, the disk obvious, the filaments and style about 1 mm. long, and the ovules 6 or 8 per locule.

Pristimera Miers

Pristimera indica (Willd.) A. C. Sm. in Am. Jour. Bot. 28: 440. 1941.

Hippocratea indica Willd. Sp. Pl. 1: 193. 1797.

CHINA: Hainan: Ka Chik Shan and vicinity, Ch'ang-kiang District, S. K. Lau 1675 (NY); Ue Lung Shan, Ch'ang-kiang District, S. K. Lau 3131 (A); Pak Shik Ling and vicinity, Ching Mai District, C. I. Lei 847 (NY); Yaichow, H. Y. Liang 62979 (A, NY).

The above specimens are listed because the species appears not to have been otherwise recorded from China. Although, as indicated by herbarium records, *Pristimera indica* is a very widespread species, it is fairly variable as currently interpreted and its range cannot be stated without detailed study of the genus. The Hainan material, however, appears quite identical with that from India and Ceylon. Willdenow gives the original locality as "in India orientali."

Pristimera setulosa sp. nov. FIG. 3.

Frutex scandens, ramulis hornotinis acute quadrangularibus copiose setulosis (pilis 0.1–0.15 mm. longis, glandulosis [?]), annotinis glabrescentibus, vetustioribus teretibus cinereis; foliis oppositis glabris, petiolis gracilibus leviter canaliculatis 3–5 mm. longis, laminis chartaceis in sicco fusco-viridibus ellipticis, 4–6.5 cm. longis, 2–3.5 cm. latis, basi obtusis vel subacutis et in petiolum decurrentibus, apice obtusis vel breviter et obtuse cuspidatis, margine crenulato-serrulatis (dentibus 5 vel 6 per centimetrum inconspicuis), costa utrinque valde elevata, nervis secundariis utrinsecus 4 vel 5 arcuato-adscendentibus supra subplanis subtus prominulis, rete venularum supra immerso subtus laxo prominulo; inflorescentiis solitariis vel binis in axillis foliorum saepe delapsorum subdichotome cymosis multifloris 1.5–3 cm. longis et latis, pedunculo ad 17 mm. longo ramulisque quadrangularibus et copiose setulosis, bracteis papyraceis glabris deltoideo-oblongis 0.5–0.8 mm. longis acutis, bracteolis similibus minoribus; floribus in ramulis ultimis binis pedicello gracili 0.6–0.8 mm. longo obscure setuloso excepto glabris; sepalis papyraceis deltoideo-oblongis, 0.4–0.5 mm. longis, circiter 0.3 mm. latis, obtusis, margine erosulis; petalis tenuiter carnosis elliptico-oblongis, circiter 1 mm. longis et 0.5 mm. latis, apice obtusis, integris, utrinque obscure papillois, glabris; disco obscuro minutissime annulari; staminibus 3 minutis, filamentis ligulatis circiter 0.15 mm. longis, antheris circiter 0.1 × 0.15 mm.; ovario depresso-subgloboso sub anthesi circiter 0.4 mm. diametro 3-lobato, ovulis in quoque loculo 2 collateralibus, stylo inconspicuo circiter 0.15 mm. longo truncato.

CHINA: Yünnan: Man-hao [on Yang Chiang (Red River) near Indo-Chinese boundary], A. Henry 9612 (NY, TYPE) (large climber with yellow flowers, coll. June 19 [year?]).

The new species differs from the common *P. indica* (Willd.) A. C. Sm., which apparently does not occur in interior China, in its densely setulose

young branchlets and inflorescence-branches. The hairs are very abundant, stand out stiffly, and are glossy when expanded, as though glandular in nature. The young branchlets and inflorescence-branches are sharply quadrangular, whereas these parts in *P. indica* are usually subterete.



FIG. 3. *Pristimera setulosa*; a. flowering branchlet, $\times \frac{1}{2}$; b. detail of inflorescence, $\times 3$; c. young flowers, $\times 5$; d. flower with two petals removed, $\times 20$. Drawn from the type.

Pristimera arborea (Roxb.) comb. nov.

Hippocratea arborea Roxb. Hort. Beng. 5, nomen. 1814, Pl. Coast Corom. 3: 3. pl. 205. 1819, Fl. Ind. 1: 171. 1820.

INDIA: Cult. Calcutta Botanic Garden, Wallich 4212C (NY), Collector?, Feb. 22, 1901 (A); "East Himalaya," Griffith 910 (GH); "W. Himalaya," J. F. Duthie (A). BURMA: (Without data), J. C. Prager 23 (NY). CHINA: Yünnan: Puerh cliffs, alt. 1800 m., A. Henry 13203 (A) (large climber); Sheau-meng-yeang, Che-li Hsien, alt. 960-1000 m., C. W. Wang 75610 (A), 79608 (A) (vines, in woods on mountain-slopes; capsules green).

The Wallich specimen cited above is listed under *Hippocratea arborea* Roxb. by Wallich (Cat. no. 4212C. [1830]) as "HBC.," thus indicating that it was taken from a plant cultivated in the Calcutta Botanic Garden. In habit this Wallich specimen agrees precisely with Roxburgh's descriptions and illustration; in floral details these descriptions and the illustration are highly inaccurate, which is not surprising in view of the fact that at anthesis the flower is little more than 1 mm. in diameter. However, there

seems no doubt that Roxburgh had at hand a species of *Pristimera* closely allied to *P. indica* (Willd.) A. C. Sm. The original collection is said to have come from the "interior parts of India," and Roxburgh (Pl. Coast Corom. 3: 4. 1819) states that the species was in cultivation at Calcutta. It seems very likely, therefore, that the Wallich specimen was taken from the type plant or a descendant of it.

It is also possible that the fruiting specimen cited above (*Collector?*, Feb. 22, 1901) came from a descendant of Roxburgh's original plant, although its leaves are slightly thicker and less obviously serrate than those of *Wallich 4212C*. In its fruit, the collection of 1901 seems to agree well with Roxburgh's concept.

Of the other Indian specimens cited above, *Griffith 910* has inflorescences identical with those of *Wallich 4212C*, although its leaves are somewhat more coarsely serrate; I believe that the Griffith specimen can be referred here with reasonable certainty. It is probably part of the same collection which was questionably referred to *Hippocratea arborea* by Lawson (in Hook. f. Fl. Brit. Ind. 1: 625.-1875), as from "Bhotan and the Khasia Mts." The Duthie specimen consists of young leaves and inflorescences and is accompanied by mature fruits; it is referred to the species with confidence. Lawson (l. c.) states that this species differs from *Hippocratea indica* "apparently in nothing but size." The two species are indeed very similar in inflorescence characters, but the much larger leaves and fruits of *Pristimera arborea* make it readily recognizable.

The cited Burmese specimen is remarkably similar to *Wallich 4212C* in both foliage and inflorescences, while the cited Chinese specimens, all in fruit, seem undoubtedly to belong here. The range of the species is thus from northeastern India across [northern?] Burma to southern Yünnan. Apparently it has not previously been recorded outside of India.

Pristimera cambodiana (Pierre) comb. nov.

Hippocratea cambodiana Pierre, Fl. For. Cochinch. 4: pl. 302B. 1893; Pitard in Lecomte, Fl. Gén. Indo-Chine 1: 896. 1912.

INDO-CHINA: Cambodge: Samrong-tông, L. Pierre 869 (COTYPE COLL., A, NY). CHINA: Yünnan: Lan-Tsang Hsien, alt. 890-1100 m., C. W. Wang 73135 (A), 76712 (A) (woody vines, on mountain slope or on outcrop on river-bank). Upper BURMA: J. C. Prazer in 1894 (A, 2 sheets), 39 (NY).

A single flower associated with *Wang 73135* agrees precisely with the flowers described and well figured by Pierre. The species is marked by its small flowers, involute petals, inconspicuous disk, and 6-ovulate locules. In foliage, the cited Chinese specimens agree very well with the available cotype collection. *Wang 76712* bears juvenile fruits, the capsules of which are much shorter than those of *Pierre 869* but similar in texture. The cited Prazer specimens from Burma agree precisely with *Pierre 869* in foliage, and the available capsules are identical in shape with those of the Pierre specimen but are shorter, perhaps due to immaturity.

These collections extend the range of the species to southern Yünnan and northern Burma; otherwise it has been recorded only from the southern part of Indo-China (Cochinchine and Cambodge).

Pristimera cambodiana differs from the widespread *P. indica* (Willd.) A. C. Sm. in its much larger leaves, flowers, and fruits, its 6- rather than 2-ovulate locules, and in other obvious characters. Nevertheless the floral characters of the two species are fundamentally similar, and I believe that Pierre's species is safely referable to *Pristimera*, as emended by the writer in *Brittonia* 3: 367-383. 1940, and in *Am. Jour. Bot.* 28: 440. 1941.

A closer relative of *P. cambodiana* is *Pristimera Grahamii* (Wight) comb. nov. (*Hippocratea Grahamii* Wight, *Ill. Ind. Bot.* 1: 134. [1839], *Ic. Pl. Ind. Or.* 2: pl. 380. 1840). From this Indian species, *P. cambodiana* differs in its somewhat larger leaves, shorter pedicels, glabrous rather than faintly puberulent disk, and longer filaments and style. *Pristimera Grahamii* is represented by two specimens collected by Law (GH) in the Kanara District, Bombay; the type (coll. Graham) is said to have come from Bombay.

It should be noted that *Wang 73135* was cited by Hu as the type of *Mangifera austro-yunnanensis* (in *Bull. Fan Mem. Inst. Biol.* 10: 160. 1940). This circumstance is doubtless due to a mixture of numbers, as the data on the field label of our specimen are different, while Hu's description of the *Mangifera* obviously does not pertain to our plant.

Both *Hippocratea cambodiana* and *H. Grahamii* are placed by Loesener (in *Nat. Pfl.* ed. 2. 20b: 216. 1942) in *Hippocratea* subgen. *Euhippocratea* sect. *Thyrsiflorae*, whereas *Hippocratea indica* and *H. arborea* are placed by him in *Hippocratea* subgen. *Euhippocratea* sect. *Micranthae* (op. cit. 212).

SUMMARY

Three new Chinese species of Hippocrateaceae are above described and seven new combinations are proposed in *Loeseneriella* and *Pristimera* for species of southeastern Asia. The seven species of capsular-fruited Hippocrateaceae now known from China may be keyed as follows:

Flowers comparatively large, the petals at least 4 mm. long, often spreading at anthesis, the disk conspicuous, annular-pulvinate, 1-1.5 mm. high, slightly constricted near the middle; capsules usually obovate-elliptic (*Loeseneriella*).

Inflorescence-branches and pedicels essentially glabrous, the pedicels 5-15 mm. long at anthesis; ovules 4 per locule; petioles 2-4 mm. long; leaf-blades usually 4-7 × 1.5-3.5 cm. (Hongkong, Kwangtung, Kwangsi).. *Loeseneriella concinna*.

Inflorescence-branches and pedicels puberulent at anthesis, the pedicels 2-8 mm. long at anthesis; ovules 8-10 per locule; leaf-blades 5-10.5 × 2-6 cm.

Leaf-blades oblong-elliptic, the acumen 5-10 mm. long; petioles 5-8 mm. long; petals 4-5 × 1.7-2.5 mm.; filaments 1-1.7 mm. long (Hainan)..... *Loeseneriella Merrilliana*.

Leaf-blades elliptic, obtuse or short-cuspidate; petioles 2-5 mm. long; petals larger, 5-8 × 2.5-4 mm.; filaments 2-2.5 mm. long (southern Yunnan)..... *Loeseneriella yunnanensis*.

Flowers small, the petals less than 3 mm. long, suberect at anthesis, the disk obscure, scarcely apparent as a pulvinate thickening at base of stamens; capsules narrowly oblong (*Pristimera*).

Petals about 1 mm. long at anthesis; ovules 2 per locule; capsules 2-seeded.

Leaf-blades chartaceous, usually $3.5-10 \times 2-5$ cm.; capsules at maturity (not known for *P. setulosa*) $3-4.5 \times 1-1.5$ cm.

Young branchlets and inflorescence-branches glabrous, usually subterete (Hainan; also India, Indo-China, Malaysia, etc.).....*Pristimera indica*.

Young branchlets and inflorescence-branches densely setulose with apparently glandular hairs, sharply quadrangular (Yünnan).....*Pristimera setulosa*.

Leaf-blades chartaceous to subcoriaceous, usually $10-17 \times 5-9$ cm.; capsules at maturity $6.5-9.5 \times 2.5-3.5$ cm. (southern Yünnan; also northeastern India and Burma).....*Pristimera arborea*.

Petals 2.5-3 mm. long at anthesis; ovules 6 per locule; capsules $7-10.5 \times 2-3$ cm., usually 6-seeded; leaf-blades coriaceous, usually $12-15 \times 5-9$ cm. (southern Yünnan; also Indo-China and Burma).....*Pristimera cambodiana*.

In addition to these seven species, another apparently undescribed species of *Loeseneriella* from China is represented by *R. C. Ching 6573* (NY), from Chang Tung, E. Tan Shan, Kwangsi. This is a distinct species with copiously pubescent petals, but the collection seems inadequate to be the sole basis of a new species.

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